

E. P. BULLARD, JR.
 ADJUSTING DEVICE FOR FEED SHAFTS.
 APPLICATION FILED MAR. 31, 1911.

1,024,309.

Patented Apr. 23, 1912.

Fig. 1

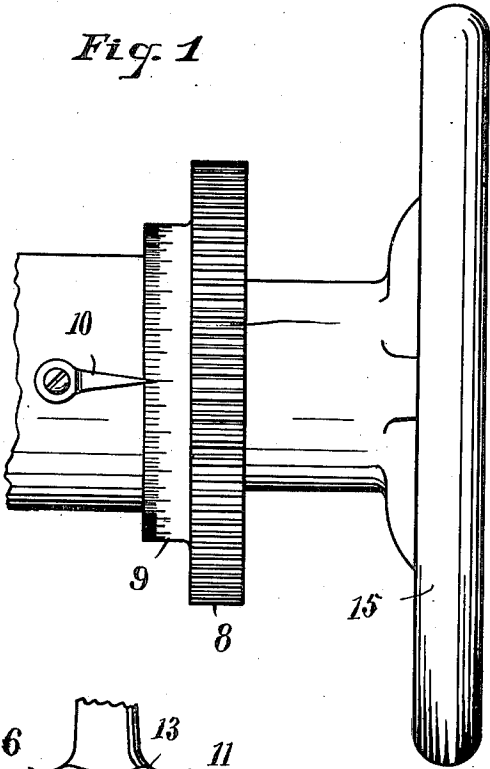


Fig. 2

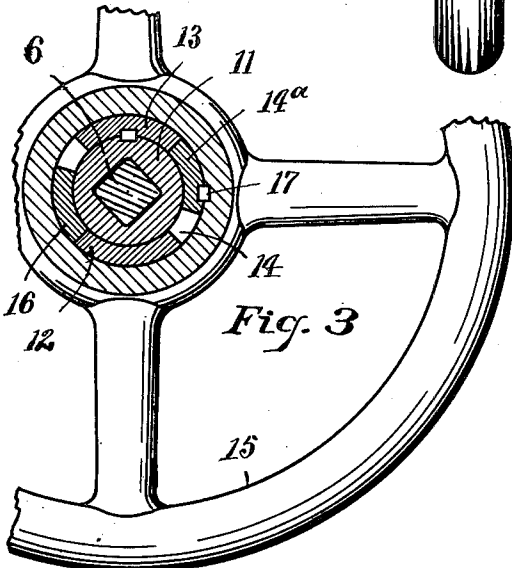
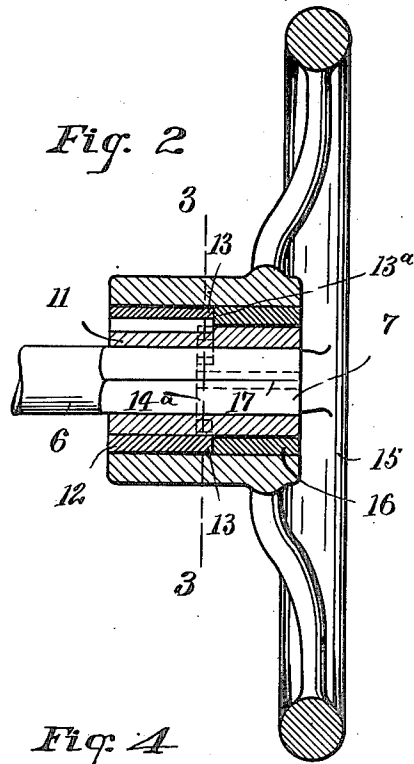


Fig. 4

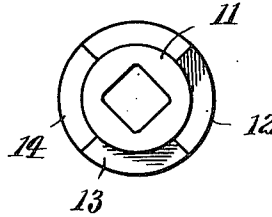
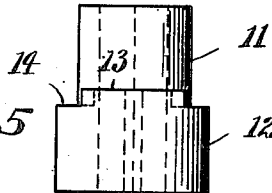


Fig. 5



Witnesses
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UNITED STATES PATENT OFFICE.

EDWARD P. BULLARD, JR., OF BRIDGEPORT, CONNECTICUT.

ADJUSTING DEVICE FOR FEED-SHAFTS.

1,024,309.

Specification of Letters Patent.

Patented Apr. 23, 1912.

Application filed March 31, 1911. Serial No. 618,240.

To all whom it may concern:

Be it known that I, EDWARD P. BULLARD, Jr., a citizen of the United States, and resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Adjusting Devices for Feed-Shafts, of which the following is a specification.

This invention relates to new and useful improvements in devices for adjusting the feed shafts of machine tools, and it is the object of the invention to provide means whereby such shafts may be adjusted and brought to a certain point, with ease and accuracy preparatory to the beginning of an operation of the machine.

In addition to the regular driving connections of feed shafts of machine tools, it has heretofore been common to employ a crank handle upon such shafts whereby slight hand adjustments of the shafts could be obtained as for setting the tool of the machine. Such handles, however, are objectionable since they are frequently left on the shaft after being used, with the result that when power is applied to the shaft, the said handle is swung around, and is liable to strike the operator. In the final adjustment of these feed shafts with the crank handle referred to, it is necessary to bring the same up to its final position by striking the handle with a hammer or other tool which in time tends to batter up and deface the same. I have, therefore, devised a simple and novel construction for accomplishing this adjustment without the use of such an objectionable and unsightly feature as an extended handle, yet I employ means whereby practically the same effect of adjustment is obtained, and which serves to bring the shaft to its final point of adjustment with one or more light raps against a sleeve fixed thereto, through the medium of an adjusting wheel movably secured to the sleeve upon the shaft as will later be explained.

Upon the accompanying drawings forming a part of this specification similar characters of reference will be found to designate like or corresponding parts throughout the several figures, and of which,

Figure 1, shows a side elevation of the end portion of the feed shaft of the kind referred to, with my improved adjusting hand wheel mounted thereon. Fig. 2, is a

central vertical longitudinal section of the wheel and sleeve, mounted upon the feed shaft. Fig. 3, is a vertical cross section through the shaft, sleeve and hub of the wheel, taken on line 3—3 of Fig. 2. Fig. 4, is a detached end view of the sleeve that is slid on to the squared end of the feed shaft, and, Fig. 5, is a side view of said sleeve.

Referring in detail to the characters of reference marked upon the drawings 6 indicates the feed shaft and 7 the squared outer end portion thereof. In practice this shaft is obviously mounted in suitable bearings of the machine, and designed to be driven automatically through suitable operative connections with the driving parts of the machine, and is also susceptible of being slightly adjusted by hand to set the shaft and its connected tool carrying parts at a certain position with relation to the work carried upon the machine. This shaft in practice is provided with a gear 8 having a hub 9 the peripheral face of which is finely graduated. On a fixed part of the frame of the machine is mounted a pointer 10 which extends out over the peripheral face of the hub of the gear so as to facilitate the reading of the graduations, when the shaft, gear and hub are adjusted. A sleeve 11 having a longitudinal square hole therethrough is placed upon the end 7 of the shaft and bears a shoulder against which the hub of the wheel knocks as in the adjustment of the parts. Upon the inner end portion of this sleeve is secured a collar 12 which as shown in the drawing is attached by being driven thereon and thus fixed thereto in a way to form an integral enlargement of the sleeve. The forward end of this collar or shouldered end portion of the sleeve is notched, to form two teeth 13 and two pockets 14, the former to operate in pockets 13^a of the wheel and the latter to receive teeth 14^a of the wheel, as will be again referred to.

The operating hand wheel 15 is provided with a suitable hub having a hole therethrough, and is further provided with an internal shouldered collar 16 that is of about half the length of the hub of the wheel and secured in the outer end portion of its hub in any suitable way as for instance by means of a key 17 and its forward end is notched to form the before mentioned coacting and intersecting tooth and pocket portions to

operate the sleeve. These teeth and pockets of the sleeve are of substantially the same size, while the two teeth 14^a on the wheel are somewhat shorter than the pockets 14 of the sleeve so as to produce a limited free movement of the wheel upon the sleeve, and so that, as the wheel is turned back and then brought forward against the shoulder of the sleeve, it serves to knock or jar the same together with the shaft and parts carried thereby, in very much the same way as it would if the wheel were fixed to the shaft and one of the spokes were tapped with a hammer or other tool. By one or more of such knocking operations of the wheel against the sleeve and shaft, a very fine adjustment of the latter can easily be obtained, and the same can of course, be adjusted forward or back as occasion requires. It will be obvious that so far as the operation of this type of device is concerned the collar within the hub of the wheel could be formed integral therewith and likewise the sleeve and its collar could be formed in one piece, but for convenience in manufacture I first form them separate and then secure them together in the manner illustrated.

While I have described this device as being designed for use upon a feed shaft of machine tools, yet it will be obvious that there are other places where it can be used to equally as good advantage in obtaining the final adjustment of shafts of different sorts and for various purposes.

Having thus described my invention what

I claim and desire to secure by Letters Patent is—

1. In an adjusting device of the class described the combination with a fixed indicator member, of a rotary shaft, a graduated member mounted upon the shaft to be read in conjunction with the fixed member, a sleeve mounted upon the shaft and having pockets and shoulders, a wheel mounted loosely upon the sleeve and having shoulders within and susceptible of a limited amount of lost motion with reference to the sleeve and adapted to be turned against the shoulders of the sleeve to knock the same and adjust the shaft.

2. In an adjusting device of the class described, the combination of a rotary shaft having a squared portion, a removable sleeve slid upon the squared portion of the shaft and having pockets therein, a wheel loosely mounted upon the sleeve and having teeth that fit into the pockets of the sleeve and that are of a less arcuate dimension than the pockets to insure a limited amount of lost motion of the teeth within the pockets and to permit said teeth to be turned against the shoulders of the sleeve to knock the same and adjust the shaft.

Signed at Bridgeport in the county of Fairfield and State of Connecticut this 27th day of March A. D., 1911.

EDWARD P. BULLARD, JR.

Witnesses:

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C. M. NEWMAN.